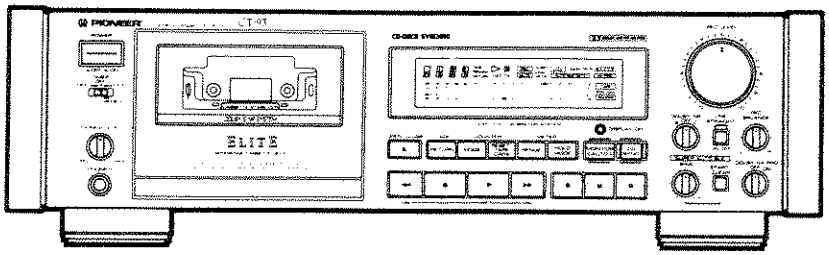
Operating Instructions

STEREO CASSETTE DECK

CT-93/CT-979
CT-41/CT-777
CT-S709/CT-676

The illustrations and text in this manual refer basically to CT-93.



- The above illustration shows CT-93 U.S. model.

Thank you for buying this Pioneer product.
Please read through these operating instructions so you will know how to operate your unit properly. After you have finished reading the instructions, keep the manual in a safe place for future reference.
In some countries or regions, the shape of the power plug and power outlet may sometimes differ from that shown in the explanatory drawings. However, the method of connecting and operating the unit is the same.

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

IMPORTANT NOTICE
[For U.S. and Canadian models]

The serial number for this equipment is located on the rear panel. Please write this serial number on your enclosed warranty card and keep it in a secure area. This is for your security.

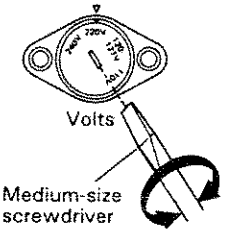
[For Canadian model]

CAUTION: TO PREVENT ELECTRIC SHOCK DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

ATTENTION: POUR PREVENIR LES CHOCS ELECTRIQUES NE PAS UTILISER CETTE FICHE POLARISEE AVEC UN PROLONGATEUR UNE PRISE DE COURANT OU UNE AUTRE SORTIE DE COURANT, SAUF SI LES LAMES PEUVENT ETRE INSEREES A FOND SANS EN LAISSER AUCUNE PARTIE A DECOUVERT.

"This product complies with the Radio Interference requirements of the EC (European Community) Directive 87/308/EEC."

LINE VOLTAGE SELECTOR SWITCH



Only multi-voltage models are provided with this switch. U.S., Canadian, European, U.K., and Australian models are not provided with this switch.
Mains voltages in Saudi Arabia are 127V and 220V only. Never use this model with a 110V setting in Saudi Arabia.
The line voltage selector switch is on the rear panel. Before your model is shipped from the factory, this switch is set to the power requirements of the destination. Check that it is set properly before plugging the power cord into the AC outlet. If the voltage is not properly set or if you move to an area where the voltage requirements differ, adjust the selector switch as follows.

1. Disconnect the power cord.
2. Use a medium-size screwdriver.
3. Insert the screwdriver into the groove on the voltage selector, and adjust so that the tip of the arrow points to the voltage value of your area.

The side wood panel of model CT-93 has a mahogany grain PVC finish.

PIONEER®
The Art of Entertainment

IMPORTANT 1

The lightning flash with arrowhead, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

CAUTION:
TO PREVENT THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

IMPORTANT 2

If the apparatus is fitted with AC mains power outlet(s), see REAR PANEL FACILITIES for convenient connection of additional Hi-Fi component(s). Make all connections to the AC outlet(s) and the signal terminals first. Connect the plug to the wall socket last, make sure that the power switch is off.

FOR USE IN THE UNITED KINGDOM

The wires in this mains lead are coloured in accordance with the following code:

Blue: Neutral
Brown: Live

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured marking identifying the terminals in your plug proceed as follows:

The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.
The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.
Do not connect either wire to the earth terminal of a three pin plug.
Equipment sold in the U.K. is not supplied with a power plug.

SAFETY INSTRUCTIONS

READ INSTRUCTIONS – All the safety and operating instructions should be read before the appliance is operated.

RETAIN INSTRUCTIONS – The operating instructions should be retained for future reference.

HEED WARNING – All warnings on the appliance and in the operating instructions should be adhered to.

FOLLOW INSTRUCTIONS – All operating and use instructions should be followed.

WATER AND MOISTURE – The appliance should not be used near water – for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc.

LOCATION – The appliance should be installed in a stable location.

WALL OR CEILING MOUNTING – The appliance should not be mounted to a wall or ceiling.

VENTILATION – The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or, placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.

HEAT – The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.

POWER SOURCES – The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.

POWER-CORD PROTECTION – Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them. Pay particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.

POLARIZATION – If your purchased product is provided with a polarized power plug, please read the following instructions. This product is equipped with a polarized alternating current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.

CLEANING – The appliance should be cleaned only with a polishing cloth or a soft dry cloth. Never clean with furniture wax, benzine, insecticides or other volatile liquids since they may corrode the cabinet.

POWER LINES – An outdoor antenna should be located away from power lines.

NONUSE PERIODS – The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.

OBJECT AND LIQUID ENTRY – Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.

DAMAGE REQUIRING SERVICE – The appliance should be serviced by a Pioneer authorized service center or qualified service personnel when:

- The power-supply cord or the plug has been damaged.
- Objects have fallen, or liquid has been spilled into the appliance.
- The appliance has been exposed to rain.
- The appliance does not appear to operate normally or exhibits a marked change in performance.
- The appliance has been dropped or the enclosure damaged.

SERVICING – The user should not attempt to service the appliance beyond that described in the operating instructions. For all other servicing, contact the nearest Pioneer authorized service center.

OUTDOOR ANTENNA GROUNDING – If an outside antenna is connected to the antenna terminal, be sure the antenna system is grounded so as to provide some protection against voltage surges and built up static charges.
In the U.S.A. section 810 of the National Electrical Code, ANSI/NFPA No. 70-1984, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See Fig. A.

CART – An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.

NEC – NATIONAL ELECTRIC CODE

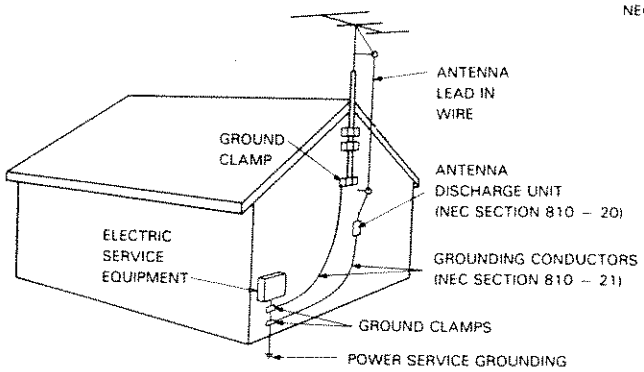


FIG. A

INFORMATION TO USER [FOR U.S. MODEL]

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- reorient the receiving antenna
- relocate this equipment with respect to the receiver
- move this equipment away from the receiver
- plug this equipment into a different outlet so that equipment and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:
"How to Identify and Resolve Radio-TV Interference Problems"
This booklet is available from the US Government Printing Office, Washington, D.C., 20402, Stock No. 004-000-00345-4.

The above instructions apply only to units which will be operated in the United States.

[For Canadian model]
This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

[Pour le modèle Canadien]
L'interférence, radioélectrique générée par cet appareil numérique de type B ne dépasse pas les limites énoncées dans le Règlement sur les perturbations radioélectriques, section appareil numérique, du Ministère des Communications.

INSTALLATION

When installing the deck, avoid locations with high temperatures or humidity, and make sure that the deck receives adequate ventilation.

- Do not install the deck in locations subject to direct sunlight, or near a space heater or other heating device, as this may cause damage to the finish or internal parts.
- Malfunctions may also result if the deck is installed in an excessively humid or dusty location. Avoid installing the deck next to kitchen counters or other locations subject to oily smoke or humidity.
- If the deck is placed directly on top of an amplifier, it may pick up humming or other noise. Also, if the amplifier generates a large amount of heat, the deck may malfunction.
- If the deck is located near a television set, it may pick up interference noise, which will be recorded as a whistling sound on the tape. If this happens, move the deck further away from the television set or turn the television set off when operating the deck.
- Do not place a cloth over the deck, or block the ventilation slots in any way. The ventilation slots on this deck are necessary to keep internal parts cool. If they are blocked, the deck may malfunction.

CONDENSATION

When the deck is moved from a cold location to a warm location, or when the temperature of the room changes suddenly, condensation may form on the mechanical parts. This can adversely affect the performance of the deck. If this occurs, wait for about one hour to allow the deck to adjust to the room temperature. To prevent condensation when heating a room, raise the temperature slowly.

CONTENTS

INSTALLATION 3
MAINTENANCE 4
HANDLING CASSETTE TAPES 5
CONNECTIONS 6
FRONT PANEL FACILITIES 8
ATLC 9
SUPER AUTO BLE 9
FUNCTION DISPLAY 10
COUNTER MODES 13
PLAYBACK 14
REPEAT PLAYBACK 14
MUSIC SEARCH 14
RECORDING 15
RECORDING LEVEL ADJUSTMENT BY PEAK LEVEL CALIBRATION SYSTEM (CT-93, CT-979) 16
BIAS CONTROL (CT-93, CT-979) 16
RECORDING MUTE 16
TAPE RETURN/RETURN PLAY 16
CD•DECK SYNCHRO RECORDING 16
RECORDING AND PLAYBACK USING AN AUDIO TIMER 17
TROUBLESHOOTING 18
SPECIFICATIONS 20

■Dolby B/C-type NR Systems

Dolby NR systems are designed to reduce the amount of tape hiss, mainly in the treble components. During recording, the high-pitched pianissimo sounds which are most characteristic of audible noise are boosted, and during playback, only these boosted sections are attenuated, so that tape sound is returned to normal. As a result, the noise is attenuated by an amount equal to the boosting in the treble range. The Dolby B-type NR system reduces noise in the treble range, cutting tape hiss and expanding the dynamic range. The Dolby C-type NR system is even more effective in reducing noise, as it cuts the noise from the mid-range on.

NOTE:
When a tape has been recorded using the Dolby B-type or C-type NR system, make sure that the DOLBY NR switch is set to the same position during playback.

■Dolby S-type NR System (CT-93, CT-41)

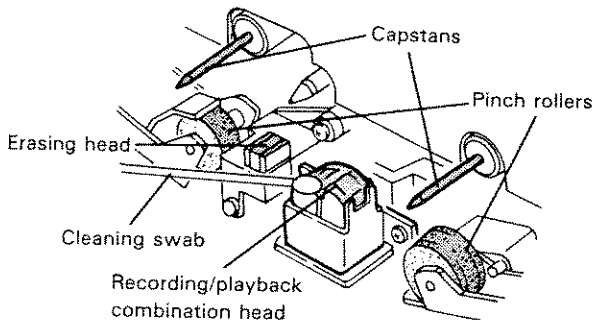
The Dolby S-type noise reduction system is effective at reducing noise not only in the treble and mid-range frequencies, but in the bass frequencies as well. In addition, maximum noise-reducing effect is demonstrated not only in non-recorded parts of the tape but in the recorded signal portions as well. The broad reduction of noise modulation (bridging noise), freedom from dynamic side-effects in the audible spectrum (signal modulation) and reduction of decoding errors results in vastly improved sound quality.

■Dolby HX PRO Headroom Extension System

The Dolby HX PRO system controls the bias current during recording and always keeps it at an optimal level according to the level of the high frequency components of the music signal. If therefore provides excellent recording quality even when recording signals from digital sources which contain a large amount of high-frequency components. To guarantee optimal recording results, the HX PRO system is activated automatically when recording begins. The Dolby HX PRO system operates regardless of the setting of the Dolby NR System switch. Furthermore, since this system affects the recording quality itself, the clarity and high quality of the sound will be maintained even when the tapes are played back on another tape deck which does not contain the HX PRO Headroom Extension System.

MAINTENANCE

CT-93



CLEANING THE HEADS, PINCH ROLLERS AND CAPSTANS

The heads, pinch rollers and capstans are likely to get dirty quite easily. If these parts, particularly the heads, get dirty, the high frequency components of a recording will not be reproduced and the stereo balance will be impaired, resulting in a deterioration of the playback sound. It is therefore recommended that the head section be cleaned regularly.

1. Press the OPEN/CLOSE button to open the cassette door.
2. Set the POWER switch to OFF.
3. Dip a cleaning swab in cleaning fluid and use it to wipe the heads, capstans and pinch rollers.

NOTE:
After cleaning the head section, do not load a tape until the cleaning fluid has dried completely (about two or three minutes.)

DEMAGNETIZING THE HEADS

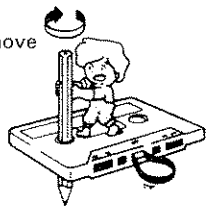
After using the cassette deck for a period of time, the heads will become magnetized. The same effect will occur if a magnetized screwdriver, magnet or other magnetized object is brought too close to the heads. When the heads become magnetized, high frequency sounds will be lost during recording or playback, and interference noise may also occur. The heads should be regularly demagnetized with a head demagnetizer, which can be purchased at most audio stores.
When demagnetizing the heads, make sure that the POWER switch of the cassette deck is set to OFF. For detailed instructions, refer to the operating instructions of the head demagnetizer.

CLEANING THE FRONT PANEL

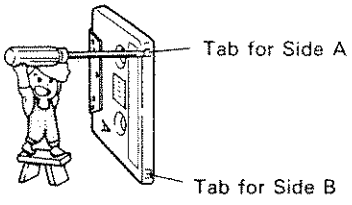
Clean the deck regularly with a soft cloth. If the front panel gets dirty or greasy, clean it with a damp cloth and mild soap, then wipe it dry with a soft cloth. Never use volatile cleaners like thinners, benzine or alcohol because they will damage the panel finish.

HANDLING CASSETTE TAPES

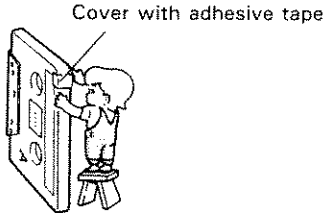
A



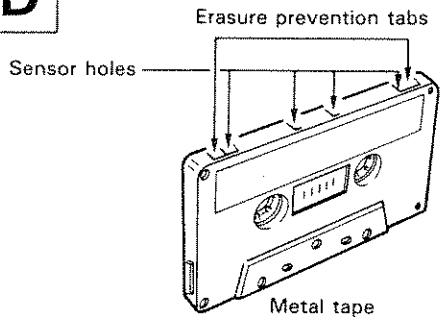
B



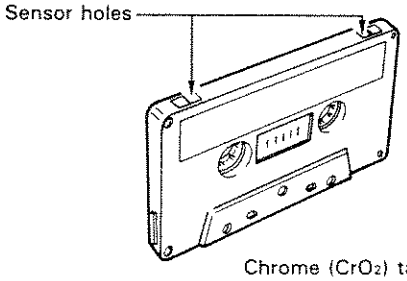
C



D



E



CHECK CASSETTE BEFORE USE

Check the following items before loading a cassette tape:

Is the tape loose, or is some of the tape outside the cassette?

If some of the tape is loose or projecting outside the cassette shell, the tape may not properly enter between the capstan and pinch roller. This will prevent the tape from being supplied properly, and may even damage the tape itself. In such cases, insert a pencil into the reel hole and take up the slack (Fig. A).
Some cassette tapes come with a plastic or thick paper stopper to prevent the tape from becoming slack. Remove this stopper when loading the cassette and replace it after using the cassette.

Are the accidental erasure prevention tabs intact?

These tabs allow you to prevent important recordings from being erased accidentally. When the tab on the cassette shell is broken off (Fig. B), it is not possible to activate the recording function, so valuable recordings will not be erased by mistake.
To re-record on a cassette whose tab has been broken off, simply stick a piece of doubled adhesive tape over the hole (Fig. C).
When using metal or chrome tapes, be careful not to block the detection holes with the tape (Fig. D, Fig. E). If the holes are blocked, the automatic tape selector mechanism will not operate correctly.

NOTES:

- *The accidental erasure tab for each side is the one located on the top left when the side that you want to protect is facing you.*
- *When breaking off the tab, do not use a magnetized screwdriver.*

AUTOMATIC TAPE SELECTOR FUNCTION

This cassette deck is equipped with an automatic tape selector function which utilizes the sensor holes on the tape cassette to determine the type of tape being used. The deck is then set to match the tape recording bias and equalization.

NOTES:

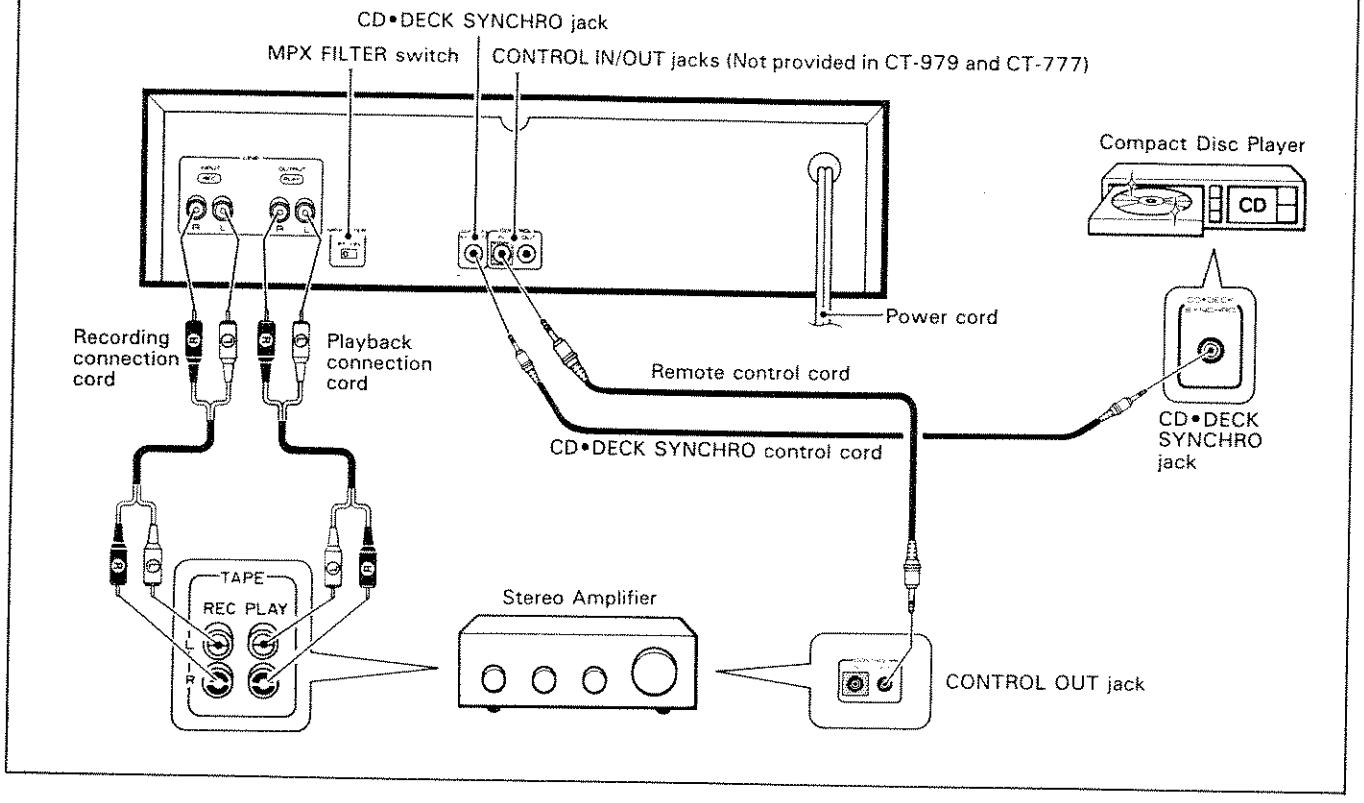
- *When using metal tapes, make sure that the tapes have sensor holes.*
- *Make sure that the sensor holes on the cassette are not blocked; otherewise the tape selector mechanism will not function properly.*
- *Do not use FeCr tapes.*

TIPS ON CASSETTE TAPES

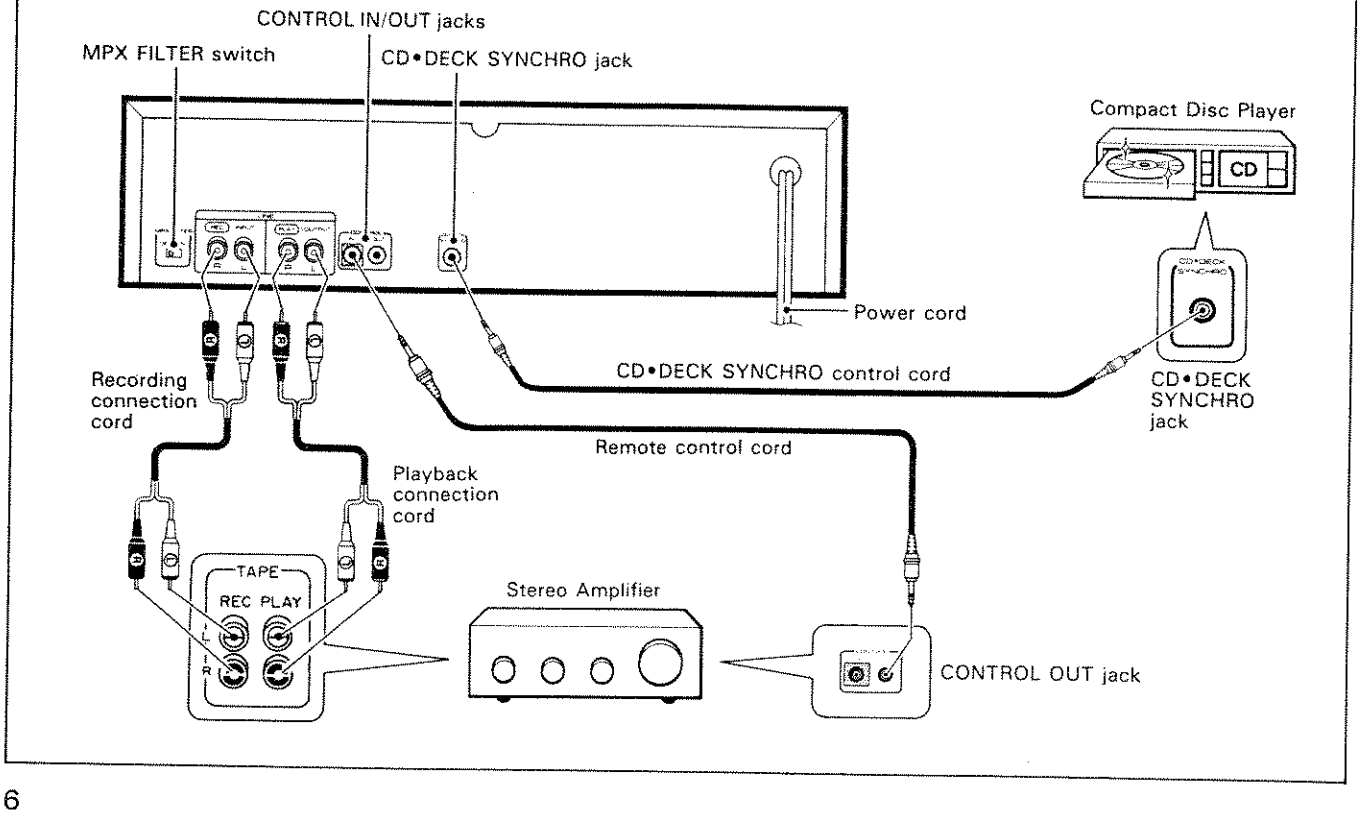
- Leader tape (which cannot be recorded on) is provided at the beginning of a cassette tape. Let the tape run for about 5 seconds before starting to record, to allow the leader tape to clear the recording head.
- Do not leave a cassette tape exposed to the environment. Store the cassette in its case after use so that dust and dirt do not adhere to the tape, and so the tape will not get slack. Store tapes in a location free from magnetism, dust, dirt, oil, heat and humidity.
- Because C-120 tapes are very thin, they can easily jam in the pinch rollers and capstan, and they often are subject to other problems such as irregular winding. It is best not to use them with this deck.
- If cassette tapes are irregularly wound, the tape may get jammed in the rollers. This can cause damage to both the tape and the deck. If you are not certain whether the tape is wound evenly, fast forward or rewind the tape from beginning to end, to make sure that the tape is properly wound.

CONNECTIONS

CT-93/CT-979/CT-41/CT-777

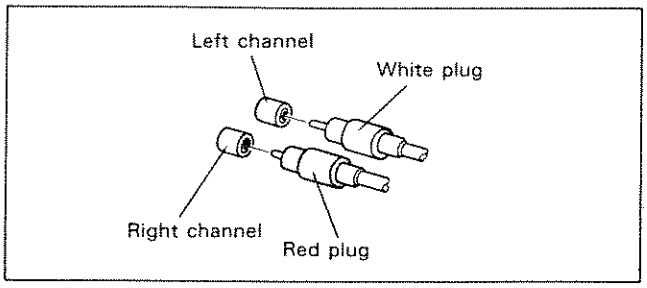


CT-S709/CT-676



- Read through the operating instructions of the stereo components which you intend to connect to this unit.
- Turn the power on only after making all the connections.
- Make sure that all of the connection plugs are inserted securely, as improper connections may generate noise.

CONNECTING THE RECORDING AND PLAYBACK CORDS



Connect the TAPE jacks of your amplifier to the LINE jacks of the cassette deck. Be sure to connect the REC (INPUT) jacks of the deck to the recording (output) jacks of the amplifier, and the PLAY (OUTPUT) jacks of the deck to the play (input) jacks of the amplifier.

- Connect the plugs properly:
  Left channel — White plug
  Right channel — Red plug

MPX FILTER SWITCH

Set the MPX FILTER switch, located on the rear panel, to ON when recording an FM stereo broadcast using the Dolby NR system (see page 4). Set it to OFF at other times.

Explanation on the MPX FILTER

The FM stereo signals contain the 19-kHz pilot signal and 38-kHz sub-carrier. Depending on tuners, these may cause a malfunction of the Dolby noise reduction circuit, disabling the reproduction of high-frequency sound. Set this switch to ON to prevent a malfunction.
Set the switch to OFF when recording non-FM stereo broadcasting. The switch does not effect playback.

CD•DECK SYNCHRO RECORDING

- CD•DECK SYNCHRO recording can be carried out when this unit is connected to a Pioneer CD player equipped with a CD•DECK SYNCHRO jack.

Connection

Connect the CD•DECK SYNCHRO jack of this unit to the CD•DECK SYNCHRO jack of the CD player using the supplied CD•DECK SYNCHRO control cord.

NOTES:

- *Keep the input and output jacks connected between the amplifier and this unit, otherwise, the CD•DECK SYNCHRO recording cannot be carried out.*
- *Even when the CD player is connected to the amplifier with an optical fiber cable, connect the CD player to the amplifier or this unit with the input and output cords with pin plug.*

PIONEER SYSTEM REMOTE CONTROL (Not provided in CT-979 and CT-777)

CONTROL IN jack

Use the enclosed Remote Control Cord to connect this jack to the CONTROL OUT jack of another component which bears the SR mark (indicating that it is equipped with PIONEER System Remote Control). You will then be able to operate this unit using the Pioneer system remote control unit.

CONTROL OUT jack

Intermediary jack which outputs signals from the CONTROL IN jack of this unit to the input jack of another unit. Connect this jack to the CONTROL IN jack of another component compatible with Pioneer System Remote Control.

NOTE:
Be sure to connect both of the control cord's plugs securely to the CONTROL IN and CONTROL OUT jacks. Do not connect only one end of the cable.

CONNECTING THE POWER CORD

Insert the power cord of the cassette deck into the accessory AC outlet of your amplifier, or into a normal household outlet.

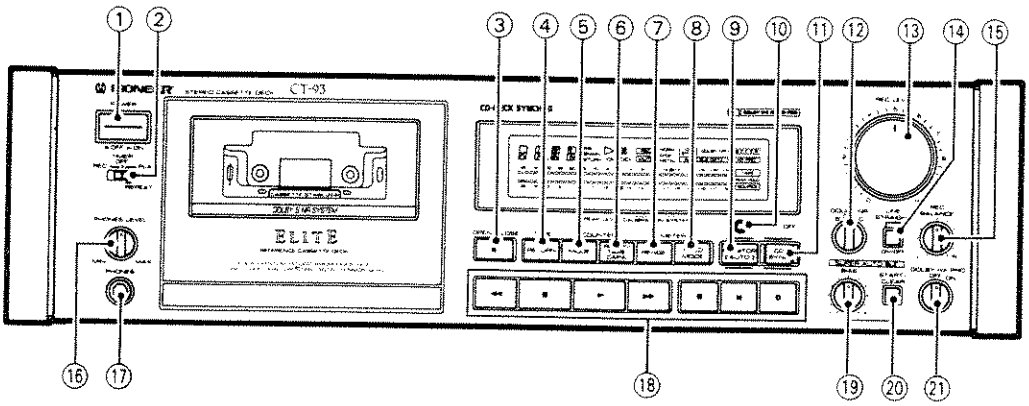
- When performing unattended recording or wake-up playback, consult the operating instructions of your audio timer for details on power cord connections.

POWER-CORD CAUTION

Handle the power cord by the plug. Do not pull out the plug by tugging the cord and never touch the power cord when your hands are wet as this could cause a short circuit or electric shock. Do not place the unit, a piece of furniture, etc., on the power cord, or pinch the cord. Never make a knot in the cord or tie it with other cords. The power cords should be routed such that they are not likely to be stepped on. A damaged power cord can cause fire or give you an electrical shock. Check the power cord once in a while. When you find it damaged, ask your nearest PIONEER authorized service center or your dealer for a replacement.

FRONT PANEL FACILITIES

CT-93 U.S. model



① **Power switch (POWER ■ OFF/ ▬ ON)**

② **Timer mode/repeat play switch (TIMER REC/OFF/PLAY-REPEAT)**

③ **Open/close button (OPEN/CLOSE ⏏)**

Press this button to open or close the cassette door. Whenever inserting or removing a cassette tape, be sure that the power is turned ON.

NOTE:

If the cassette door is closed while the unit is turned OFF, and the power is then turned ON, the cassette door may open and close after pressing one of the operation buttons. This occurs when the microprocessor resets the door mechanism to its initial state and does not indicate any malfunctioning of the unit.

④ **Tape return button (TAPE RETURN)**

This button is used in the normal tape counter mode to fast forward or rewind the tape to a point near the counter reading "0000."

⑤ **Counter mode button (COUNTER MODE)**

[CT-93, CT-979]

Each time this button is pressed, one of the three mode (Normal tape counter/Time counter/Remaining time counter) is set in sequence (see page 13).

[CT-41, CT-777, CT-S709, CT-676]

Each time this button is pressed, one of the two mode (Normal tape counter/Time counter) is set in sequence (see page 13).

⑥ **[CT-93, CT-979]**

Counter reset/Tape capacity selector button (COUNTER RESET/TAPE CAPA)

Reset the counter indication to "0000" in the normal tape counter or the time counter mode.

To indicate the correct time value in the remaining time counter mode, this button must be set in accordance with the tape used (see page 13).

[CT-41, CT-777, CT-S709, CT-676]

Counter reset button (COUNTER RESET)

Reset the counter indication to "0000."

⑦ **Level meter range selector button (METER RANGE)**

Selects wide or expanded range for the level meter.

⑧ **Level meter hold mode button (METER HOLD MODE)**

Selects the display mode of the peak level.

When press this button so that the HOLD indicator lights up, the level meter holds the maximum level indications of the signal. To erase the maximum level indications, press this button again. When the HOLD indicator goes off, the level meter holds peak indications for about 1.2 second.

⑨ **Monitor selector button (MONITOR [AUTO])**

Used to monitor the source sound or just recorded sound during recording.

- When the unit is set to record or playback mode, the TAPE indicator light up and the monitor mode is automatically selected.

⑩ **Display off button (DISPLAY OFF)**
Press this button to turn off the function display.

⑪ **CD•DECK SYNCHRO recording button (CD SYNC)**

⑫ **DOLBY* NR switch**

[CT-93, CT-41]
4-position (B/OFF/C/S)

[CT-979, CT-777, CT-S709, CT-676]
3-position (B/OFF/C)

*

- *Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Bang & Olufsen.*
- *"DOLBY", the double-D symbol ⧈ and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.*

⑬ **Recording level control (REC LEVEL)**

⑭ **[CT-93, CT-979 only]**
Line straight button/indicator (LINE STRAIGHT)
When press this button so that the indicator lights up, the signal is passed the REC BALANCE control circuits.

⑮ **Recording balance control (REC BALANCE)**

⑯ **Headphones level control (PHONES LEVEL)**

⑰ **Headphones jack (PHONES)**

⑱ **Operation buttons**
◀◀: Rewind/music search
■ : Stop
▶ : Playback
▶▶: Fast forward/music search
● : Recording
❚❚ : Pause
O : Recording mute

⑲ **[CT-93, CT-979 only]**
Recording bias control/indicator (BIAS)
If you desire, you can readjust the recording bias condition after the AUTO BLE tuning.

⑳ **SUPER AUTO BLE button (START/CLEAR)**

㉑ **[CT-93, CT-979 only]**
DOLBY HX PRO switch (OFF/ON)

ATLC (Automatic Tape Loose Canceler)

With the tape slack prevention function, when the cassette door closes, the take-up reel automatically revolves to eliminate any tape slack.

SUPER AUTO BLE

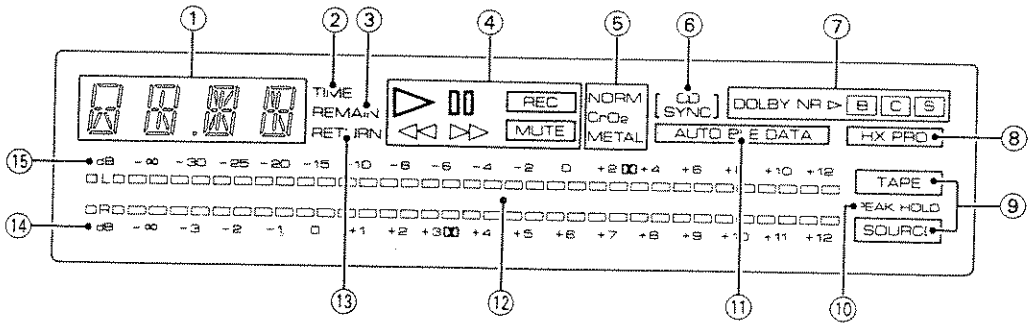
With commercially available cassette tapes, sensitivity and frequency characteristics might differ slightly from one another, even though the same sound adjustment is set for them. To utilize tape characteristics to the maximum possible and realize an ideal recording which reproduces the source exactly, optimum recording level (sensitivity) and equalizer values must be set accordingly for each tape. In many conventional tape decks, standard values are fixed for standard tapes, thus nullifying the subtle differences between individual tapes. Perfect tuning by ear through use of fine adjustment controllers for bias and sensitivity is difficult and requires a lot of effort.
The AUTO BLE on this unit automatically adjusts bias, level and equalizer by using a microprocessor to set the optimum recording characteristics accordingly for each tape.

Contrast of Super AUTO BLE Tuning System

	CT-93 CT-979	CT-41 CT-777	CT-S709 CT-676
BIAS tuning (Freq./Steps)	15 kHz 130-step equivalent (motor driven VR)	15 kHz 64-step	12 kHz 3-step
LEVEL tuning (Freq./Steps)	400 Hz 32-step	400 Hz 32-step	400 Hz 16-step
Mid EQ tuning (Freq./Steps)	3 kHz 16-step	3 kHz 16-step	3 kHz 16-step
Hi EQ tuning (Freq./Steps)	15 kHz 3-step	15 kHz 3-step	12 kHz 16-step

FUNCTION DISPLAY (CT-93, CT-979, CT-41, CT-777)

CT-93



① Counter indicator

Normally the tape, time or remaining time (CT-93, CT-979) counter is displayed number (see "COUNTER MODES").

WAIT: Flashes for four seconds after turning the power on. The unit will not operate during this time.

OPEN: Will be displayed when the cassette door is open.

CAL: Will be displayed during the AUTO BLE tuning.

P+XX/P−XX:
Will be displayed during music search.
A plus sign (+) appears in the second digit during forward direction search.
A minus sign (−) appears in the second digit during reverse direction search.
The last two digits show the number of selections to be skipped.

C60/C46L/C90/C80L (CT-93, CT-979):
Will be displayed when the COUNTER RESET/TAPE CAPA button is pressed in the tape remaining time mode (see page 13).

② TIME counter indicator

Lights up in the time counter mode.

③ REMAIN counter indicator (CT-93, CT-979)

Lights up in the remaining time counter mode.

④ Tape transport mode indicators

▷: Lights during playback, playback pause, recording and recording pause (standby) modes. Flashes during music search.

▯▯: Lights during pause modes.

◀◀: Lights during rewind and music search.

▶▶: Lights during fast forward and music search.

REC: Lights during recording and recording pause (standby) modes.

MUTE: Flashes during recording mute.

⑤ Tape type indicators

Indicates the tape type in accordance with the loaded cassette.

⑥ CD SYNC indicator

Lights when synchro recording from a CD player is being carried out.

⑦ DOLBY NR indicator

CT-93, CT-41: B/C/S

CT-979, CT-777: B/C

⑧ HX PRO indicator

CT-93, CT-979: Goes off when set the DOLBY HX PRO switch to OFF position.

CT-41, CT-777: Always lights.

⑨ Monitor source indicators

TAPE: Recorded sound

SOURCE: Original source sound

⑩ PEAK HOLD indicator

Lights when the level meter is set in the peak hold mode.

⑪ AUTO BLE DATA indicator

Lights when the AUTO BLE tuning has been completed. Flashes during the AUTO BLE tuning.

⑫ Level meter

By pressing the METER HOLD MODE button, the peak hold for about 1.2 second or continuation can be set for the level meter.
By pressing the METER RANGE button, wide or expanded range can be set for the level meter.

⑬ RETURN indicator

Lights during the tape is returned to the counter reading "0000" by pressed the TAPE RETURN button.

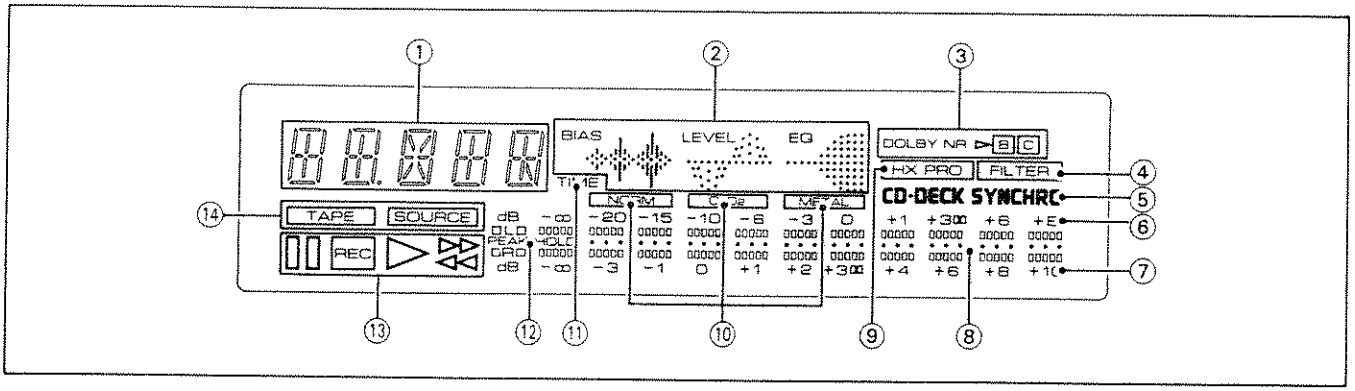
⑭ Level meter scale for expanded range

Indicates the levels from −3 to +12 dB in 16 steps.
The ▯▯ beside the +3 dB mark indicates the Dolby NR systems reference level.

⑮ Level meter scale for wide range

Indicates the levels from −30 to +12 dB in 16 steps.
The ▯▯ between the +2 and +4 dB marks indicates the Dolby NR systems reference level.

FUNCTION DISPLAY (CT-S709, CT-676)



① Counter indicator

Normally the tape or time counter is displayed number (see "COUNTER MODES").

POWER: Flashes for four seconds after turning the power on.

TIMER: Lights for approximately 10 seconds after starting TIMER PLAY or TIMER REC.
Immediately returns to normal counter mode if any button is pressed while lighted.
Otherwise, returns to normal counter mode after 10 seconds.

P+XX/P−XX:
Will be displayed during music search.
A plus sign (+) appears in the second digit during forward direction search.
A minus sign (−) appears in the second digit during reverse direction search.
The last two digits show the number of selections to be skipped.

R: Flashes "R" on the fifth digit during the tape rewinding in the repeat playback mode.

During AUTO BLE tuning, indicates STRT, BIAS, LEVEL, EQ, TUNED or Error (see page 12).

② AUTO BLE indicator

See page 12.

③ DOLBY B/C NR indicator

④ MPX filter indicator (FILTER)

Light when the MPX FILTER switch on the rear panel is set to ON position.

⑤ CD•DECK SYNCHRO indicator

Lights when synchro recording from a CD player is being carried out.

⑥ Level meter scale for wide range

Indicates the levels from −20 to +8 dB in 10 steps.
The ▯▯ beside the +3 dB marks indicates the Dolby NR systems reference level.

⑦ Level meter scale for expanded range

Indicates the levels from −3 to +10 dB in 10 steps.
The ▯▯ beside the +3 dB mark indicates the Dolby NR systems reference level.

⑧ Level meter

By pressing the METER HOLD MODE button, the peak hold for about 1.2 second or continuation can be set for the level meter.
By pressing the METER RANGE button, wide or expanded range can be set for the level meter.

⑨ HX PRO indicator

⑩ Tape type indicators

Indicates the tape type in accordance with the loaded cassette.

⑪ TIME counter indicator

Lights up in the time counter mode.

⑫ PEAK HOLD indicator

Lights when the level meter is set in the peak hold mode.

⑬ Tape transport mode indicators

▷: Lights during playback, playback pause and recording modes. Flashes during music search.

▯▯: Lights during pause modes.

◀◀: Lights during rewind.

▶▶: Lights during fast forward.

REC: Lights during recording and recording pause (standby) modes. Flashes during recording mute.

⑭ Monitor source indicators

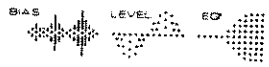
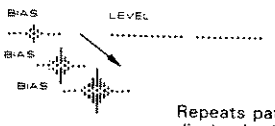
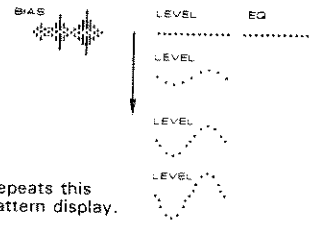
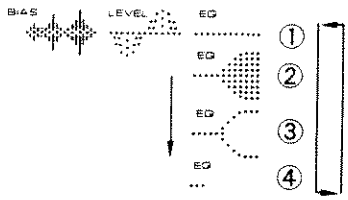
TAPE: Recorded sound

SOURCE: Original source sound

FRONT PANEL FACILITIES (CT-S709, CT-676)

The following illustrates the CT-S709 and CT-676 AUTO BLE tuning operation:

(Operation completed within approximately 10 seconds)

Operation modes		Display	
		Counter indicator	Pattern
START	(START) ① REC	START	
	② REC	BIAS	 Repeats pattern display in this order.
	③ REC	LEVEL	 Repeats this pattern display.
	④ REC ⑤ REW	EQ	 Repeats this pattern display.
TUNED	⑥ STOP (END)	TUNED	

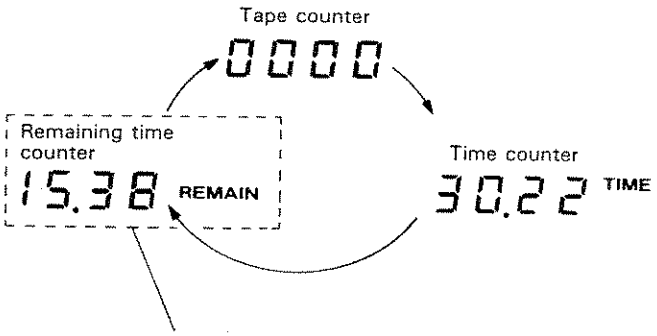
COUNTER MODES

The counter can be set to one of **three** following modes: normal tape counter, time counter for displaying the elapsed recording or playback time, or remaining time counter for displaying the remaining tape time.

- **Two modes for CT-41, CT-777, CT-S709 and CT-676.**

COUNTER MODE button

By pressing this button repeatedly, the following three modes are called in succession:



Not provided in the models CT-41, CT-777, CT-S709 and CT-676.

TAPE COUNTER

The counter reading will change as the tape runs. By taking a note of the counter readings and the contents during recording or playback, desired selections or unrecorded portions on the tape can be easily located at a later date.

TIME COUNTER

- Displays the elapsed time during recording or playback. The time counter is automatically activated when the unit is set to recording or playback.
- The time counter displays only the recording or playback duration. It disappears when fast forward, rewind or music search is performed, and is replaced by the tape counter. When recording or playback is restarted, the time counter appears again.

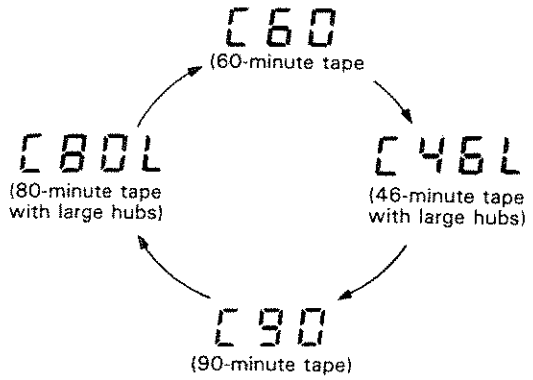
REMAINING TIME COUNTER

[CT-93, CT-979]

Displays the remaining time of the tape during recording or playback.

- **Not provided in the models CT-41, CT-777, CT-S709 and CT-676.**

1. **Set to remaining time counter mode by pressing the COUNTER MODE button.**
2. **Press the COUNTER RESET/TAPE CAPA button.**
   The counter display changes to the tape capacity display. By pressing the selector repeatedly, the following settings are called in sequence.



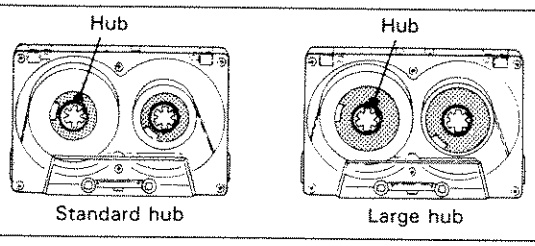
Set the tape capacity according to the length of the tape in use.

3. **Set to playback or recording mode.**
   Five to seven seconds after the tape starts running, the remaining time for the tape is displayed.

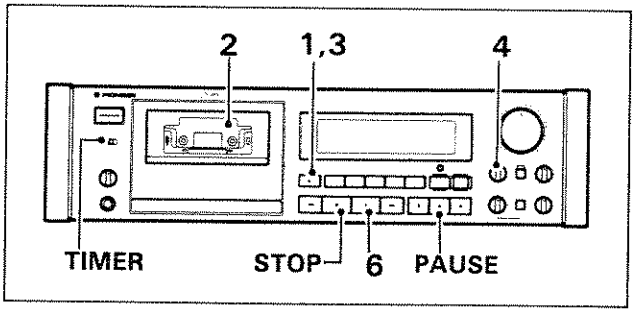
NOTES:

- *The remaining time can be indicated only for the four types of cassettes that can be selected with the COUNTER RESET/TAPE CAPA button. When using tapes of different lengths, set the selector as follows to obtain a close enough estimation of the remaining time.*
  Up to C-60, standard hub tapes ..... C-60 position
  Up to C-60, large hub tapes ..... C-46L position
  Up to C-90, standard hub tapes ..... C-90 position
  Up to C-90, large hub tapes ..... C-80L position
- *For commonly sold pre-recorded tapes the remaining time may not be displayed correctly.*
- *The actual remaining time may differ from the remaining time indication depending on the tape used. Also, since most tapes are slightly longer than the playing time indicated on the label, the remaining time indication "0000" may be reached before the actual end of the tape.*
- *Once the remaining counter has been displayed, even if the counter mode is changed, the remaining time can be checked again by simply selecting the remaining counter mode.*

NOTE:
46-minute and 80-minute tapes can be purchased with two different hub sizes: standard hub and large hub. Tapes with large hubs are marked with an "L", such as C46L and C80L.
Tapes with a hub diameter of 27 mm are referred to as large hub tapes.
Please note that with hub diameters of more than 27 mm the tape remaining time indication will not be corred.



PLAYBACK



1. **Press the OPEN/CLOSE (⏏) button.**
   When the OPEN/CLOSE button is pressed, "OPEN" appears in the counter (not provided in CT-S709 and CT-676), and the cassette door opens.
2. **Insert a prerecorded tape.**
3. **Press the OPEN/CLOSE (⏏) button.**
   - The cassette door closes.
   - When the cassette door closes, the take-up reel automatically rotates and takes up tape slack.
   - While the cassette door is open, pressing the play (▶) button, fast forward (▶▶) button, rewind (◀◀) button, recording (●) button or pause (❚❚) button (not provided in CT-S709 and CT-676) will close the cassette door automatically, and the operation corresponding to the button pressed begins.
4. **Set the DOLBY NR switch.**
   - Always set the switch to the same position that was used for recording.
5. **Set the stereo amplifier for tape playback.**
6. **Press the play (▶) button.**
   [TAPE] of the Monitor source indicator and the playback (▷) indicator light up.

To stop playback temporarily

Press the pause (❚❚) button.

- To resume playback, either press the pause (❚❚) button again, or press the playback (▶) button.

To stop playback

Press the stop (■) button.

NOTE:
If the cassette door is closed while the unit is turned OFF, and the power is then turned ON, the cassette door may open and close after pressing one of the operation buttons. This occurs when the microprocessor resets the door mechanism to its initial state and does not indicate any malfunctioning of the unit.

REPEAT PLAYBACK

1. **Set the TIMER switch to the PLAY-REPEAT position.**
2. **The rest of the procedure is the same as above steps 1 through 6.**
   - Playback will stop after the tape is repeated 16 times.
   - If one of the operation buttons is pressed during the repeat playback, a new repeat cycle will start from the point.

MUSIC SEARCH

(Skipping forward or backward to playback a desired selection)

The music search function detects blanks (longer than 4 seconds) between selections, advances the tape in the forward or reverse direction to find the beginning of the desired selection and automatically starts playback.
It can find a selection located up to 15 selections before or after the present position.

During playback

When you wish to locate the next song or beyond, press the ▶▶ button as many times as the number of songs to be skipped. When you wish to listen to the song being currently played from the beginning, press the ◀◀ button once. To return to the previous song or beyond, press the ◀◀ button as many times as the number of songs to be skipped, plus one.

From the stop mode

Press the playback (▶) button to set the playback mode, then press the ◀◀ or ▶▶ button to perform music search as mentioned above.

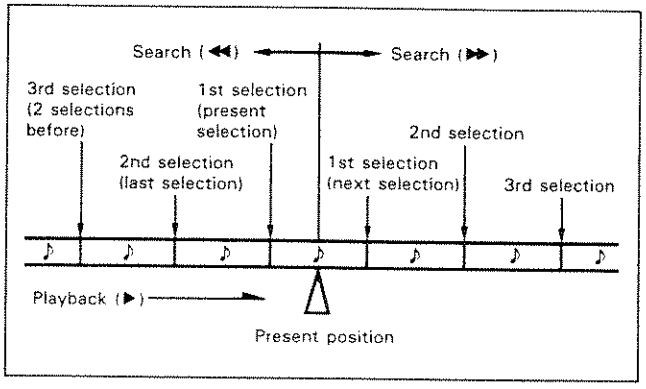
■ If the button is pressed more times than the number of selections recorded on the tape, search will stop at the tape end.

NOTES:
In the following circumstances, the music search function may be unable to properly detect blanks between selections; this is not, however, a sign of unit malfunction.

- *When using a tape with blanks between selections less than 4 seconds long.*
- *When listening to tapes with long low-level intervals, like classical music, or with sound breaks several seconds long within selections.*
- *When listening to recorded conferences or talk shows, where sound is intermittent.*
- *When using tapes with noise in the blanks between selections.*

How selections are counted

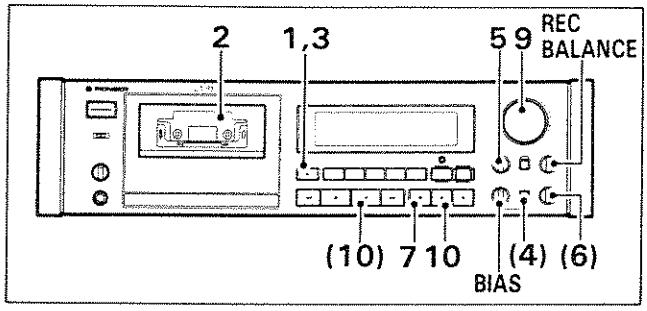
When starting the music search operation from the middle of a selection and specifying "1st previous selection," playback will return to the beginning of the present selection. To return to selections further back, count one extra selection.



RECORDING

Erasure prevention tabs

The recording (●) button does not work when the erasure prevention tabs of the loaded cassette tape have been broken off (See page 5). Do not press the recording (●) button with unreasonable force. When recording on both sides, make sure that both tabs are intact.



1. **Press the OPEN/CLOSE (⏏) button.**
   When the OPEN/CLOSE button is pressed, "OPEN" appears in the counter (not provided in CT-S709 and CT-676), and the cassette door opens.
2. **Insert a tape for recording.**
3. **Press the OPEN/CLOSE (⏏) button.**
   - The cassette door closes.
   - When the cassette door closes, the take-up reel automatically rotates and takes up tape slack.
   - While the cassette door is open, pressing the play (▶) button, fast forward (▶▶) button, rewind (◀◀) button, recording (●) button or pause (▮▮) button (not provided in CT-S709 and CT-676) will close the cassette door automatically, and the operation corresponding to the button pressed begins.
4. **If you use SUPER AUTO BLE tuning, press the START/CLEAR button.**
   [CT-93, CT-979, CT-41, CT-777]
   - "CAL" appears in the counter, and the AUTO BLE DATA indicator flashes.
   - Wait until the counter indicator returns to the normal counter, and the AUTO BLE DATA indicator lights.

   [CT-S709, CT-676]
   Wait approximately 10 seconds until "TUNED" is displayed in the counter indicator (see page 12).

   [CT-93, CT-979]
   As the BIAS control knob is automatically turned during AUTO BLE tuning, do not prevent the turning. If you desire, you can readjust the recording bias by the BIAS control knob after the AUTO BLE tuning is completed.

To stop AUTO BLE tuning

To cancel AUTO BLE tuning (e.g. must record urgently), press the stop (■) button.

To reset a tuned condition

Press the START/CLEAR button again.

Error display

If the old tape, the tape end or the leader (white portion) immediately prior to the tape end is reached during AUTO BLE operation, tuning becomes impossible. That means recording will stop immediately and the counter indicator will display the following (flashing) message: "ERR" (or "Error").
In this case, press one of the operation buttons to reset, and record without AUTO BLE tuning.

5. **Set the DOLBY NR switch.**
6. **Set the DOLBY HX PRO switch (CT-93, CT-979 only).**
7. **Press the recording (●) button.**
   - The unit is set to the recording standby mode, called one-touch recording pause.
   - The [REC] indicator, playback (▷) (not provided in CT-S709 and CT-676) and pause (▯▯) indicators light up, and monitor is set to source with the [SOURCE] indicator lit.
8. **Prepare the audio source from which you wish to record. Turn on the stereo amplifier and prepare it for playback of the desired audio source.**
9. **Adjust the recording level. For details, see "SETTING THE RECORDING LEVEL" below.**
   Depending on the source to be recorded or the equipment used for playback, the sound volume balance between left and right may be shifted to one side. In this case perform fine adjustment using the REC BALANCE control.
   Turning the control clockwise will lower the left channel level, and turning it counterclockwise will lower the level of the right channel.
10. **Press the pause (▮▮) button or the playback (▶) button to begin recording.**
    [TAPE] of the Monitor source indicator lights up, and the pause (▯▯) indicator goes off.

To stop recording temporarily

Press the pause (▮▮) button.
- To resume recording, press the pause (▮▮) button again, or press the playback (▶) button.

To stop recording

Press the stop (■) button.

SETTING THE RECORDING LEVEL

When adjusting the recording level, observe the reading on the level meter and adjust the REC LEVEL control appropriately.
When turned clockwise, the recording level is increased and the level meter reading increases accordingly. When turned counterclockwise, the level is reduced. If the recording level is too high, the distortion in the recording increases, and if the level is too low, tape noise increases and the sound level is low.

Using normal tapes (NORM) or chrome tapes (CrO_2):

Adjust the control so that "+6 dB" lights up from time to time with peak input signals.

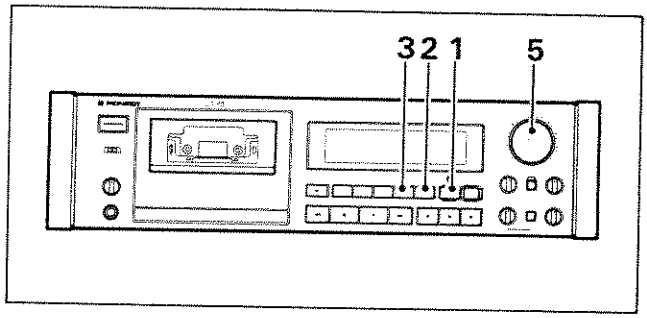
Using metal tapes (METAL):

Adjust the controls so that "+8 dB" lights up from time to time with peak input signals.

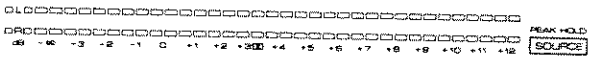
NOTE:
The optimum recording level may differ somewhat depending on the audio source and type of tape used. In order to obtain the best possible results, set the recording level after actual testing. Listen to your recordings, and adjust the level as necessary.

RECORDING LEVEL ADJUSTMENT BY PEAK LEVEL CALIBRATION SYSTEM (CT-93, CT-979)

- This function records the maximum sound volume (peak) on the selected sound source and displays the peak on the level meter to correspond with the position of the recording level control. In this way, you can easily set the most accurate possible recording level for the source selected.



1. **Press the MONITOR button, turning the SOURCE indicator on.**
2. **Press the METER HOLD MODE button, turning the HOLD indicator on.**
3. **Press the METER RANGE button, setting the expanded range.**

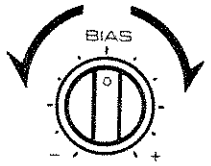


4. **Play the loud section of the audio source for recording.**
   - The level meter holds the peak level indications.
5. **Adjust the REC LEVEL control to the peak level indications are the optimum for recording.**
   - This function memorizes the recording source's maximum sound volume (peak); so long as the peak value for both left and right channels is within the expanded range scale, the recording level control can be used even after the end of the peak playback in order to set the recording level to optimum values.
   - If the peak level is higher than + 12 dB, the + 12 dB warning lamp will flash. In this event, rotate the recording level control to the left to reduce the peak and repeat the setting procedure. The previously flashing peak level will disappear and a new peak will be displayed.

BIAS CONTROL (CT-93, CT-979)

For lower distortion and the flattest possible frequency response the optimum bias current should be adjusted for each tape. When the bias is too low the high range is emphasized, while distortion increases. On the other hand, when the bias is too high, the high range is de-emphasized and distortion decreases. The optimum bias is obtained when both sound characteristics are in balance.

High range emphasized



High range de-emphasized

In the case of metal tapes, however, changing the bias has relatively little effect on the frequency characteristics, so that the adjusting range of this unit may not be sufficient for optimum bias adjustment.

RECORDING MUTE

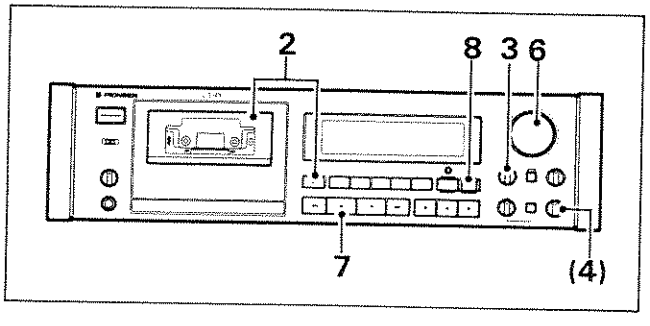
Use this function to create the 4-second blanks needed for proper operation of the music search function.

- Press the recording mute (O) button during recording and the deck will create a blank space by recording a section which contains no signal for approximately four seconds. The deck will then enter recording pause mode.
- To create a blank which is more than four seconds long, hold the button down for the desired length of time. When the button is released, the deck will enter recording pause mode.
- To resume recording, press the pause (▮▮) button or the playback (▶) button.

TAPE RETURN/RETURN PLAY

1. **Press the COUNTER RESET button at the position to be memorized.**
   - The indicator is reset to "0000".
2. **Press the TAPE RETURN button.**
   By simply pressing one button, the tape can then be fast forwarded or rewound from any position and will stop near the counter reading "0000". If the play (▶) button is pressed during tape return operation, playback will start automatically when "0000" is reached.

CD•DECK SYNCHRO RECORDING



If the CD player has a program function to determine the order of playback, program the CD player before beginning this operation.

1. **Load a compact disc in the CD player.**
2. **Load the cassette for recording.**
   - Rewind the tape to the desired starting position.
3. **Set the DOLBY NR switch.**
4. **Set the DOLBY HX PRO switch (CT-93, CT-979 only)**
5. **Press the play button of the CD player.**
6. **Adjust the recording level.**
   - See page 15.
7. **Press the stop (■) button of both the cassette deck and the CD player.**
   - Unless both this deck and the CD player are in stop mode, synchro recording cannot be performed.
8. **Press the CD SYNC button.**
   - The cassette deck begins recording, and the CD player begins playback.

When the compact disc finishes playing:

The CD player enters stop mode and the cassette deck enters recording standby mode. Change the disc and press the play button of the CD player to resume recording. If the CD player does not resume play within one minute, the cassette deck enters stop mode.

When the CD player changes discs (twin tray or multi-play disc CD players):

The cassette deck enters recording standby mode, and resumes recording when the CD player begins playing the next disc. A four-second or more blank space is automatically created between tracks.

When the end of the tape is reached while the CD player is still playing:

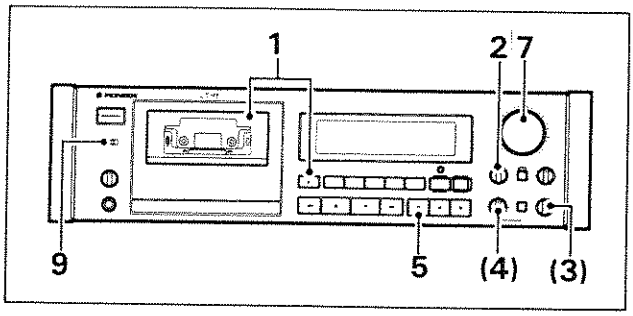
The CD player returns to the beginning of the currently-playing selection and then enters the pause mode. To resume recording, turn the tape over or load another tape. Synchro recording can be resumed by pressing the CD SYNC button again. (The CD SYNC button should be pressed within 1 minute. If more than 1 minute elapses, the CD player will enter stop mode.)

NOTES:

- *The CD•DECK SYNCHRO function only works with PIONEER CD players equipped with the CD•DECK SYNCHRO function.*
- *Be sure to connect the deck and the CD player with the CD•DECK SYNCHRO control cord.*
- *Although recording begins when the CD SYNC button is pressed, the CD player does not start playback until the button is released. This function can be used to advance the tape past the leader section, or to create a blank section on the tape.*
- *Only PIONEER CD players equipped with a CD•DECK SYNCHRO jack can be used for CD•DECK SYNCHRO recording. Any type of CD player which meets these requirements, including twin-tray or multi-play models, can be used.*
- *Even when the CD player is connected to the amplifier with an optical fiber cable, connect the CD player to the amplifier or this unit with the input and output cords with pin plug.*

RECORDING AND PLAYBACK USING AN AUDIO TIMER

UNATTENDED RECORDING

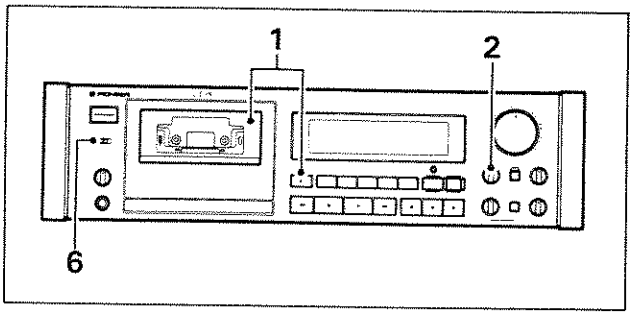


1. **Load a tape for recording.**
   - Make sure that the tape is properly rewound.
2. **Set the DOLBY NR switch.**
3. **Set the DOLBY HX PRO switch (CT-93, CT-979 only).**
4. **Set the BIAS control to the center click position (CT-93, CT-979 only).**
5. **Prepare the audio source.**
   - Set the amplifier input selector to tuner, then tune in the desired station.
6. **Press the recording (●) button.**
7. **Adjust the recording level.**
8. **Set the audio timer.**
   - When the timer is set, it will turn off the power of all connected components.
9. **Set the TIMER switch to the REC position.**
   - At the preset time, the power will be turned on, and recording will begin automatically.

NOTES:

- *Timer recording will not work if the erasure prevention tabs of the tape loaded have been removed.*
- *Operations depend on the type of audio timer used; be sure to consult the operating instructions of the audio timer you actually use.*
- *When not performing timer operations, set the TIMER switch to the OFF position. Otherwise, recording might begin unexpectedly when the power is turned on.*
- *Turn down the volume of the amplifier if you do not wish to listen to the program while it is being recorded.*

WAKE-UP PLAYBACK



RECORDING AND PLAYBACK USING AN AUDIO TIMER

1. **Load a prerecorded tape.**
   - Make sure that the tape is properly rewound.
2. **Set the DOLBY NR switch.**
3. **Set the stereo amplifier for tape playback.**
   - Adjust the volume level by playing back a portion of the tape.
4. **Rewind the tape to the position where playback is to start.**
5. **Set the audio timer.**
   - When the timer is set, it will turn off the power of all connected components.
6. **Set the TIMER switch to the PLAY-REPEAT position.**
   - At the time set on the audio timer, the power will be turned on and playback will begin automatically.

NOTES:

- *Operations depend on the type of audio timer used; be sure to consult the operating instructions of the audio timer you actually use.*
- *When the TIMER switch set to the PLAY-REPEAT position for the wake-up playback, the deck is into the repeat playback mode (see page 14).*
- *When not performing timer operations, set the TIMER switch to the OFF position. Otherwise, playback might begin unexpectedly when the power is turned on.*

TROUBLESHOOTING

Incorrect operations are often mistaken for trouble and malfunctions. If you think that there is something wrong with this component, check the points below. Sometimes the trouble may lie in another component. Investigate the other components and electrical appliances being used. If the trouble cannot be rectified even after exercising the checks listed below, ask your nearest PIONEER authorized service center or your dealer to carry out repair work.

Symptom	Cause	Remedy
POWER		
Cannot turn power on.	• The power plug is removed. • The component (stereo amplifier, audio timer, etc.) to which the power cord is connected is off.	• Insert the power plug correctly. • Turn the stereo amplifier or audio timer on.
CASSETTE DOOR		
The door does not open.	• The deck is in recording mode. • Power was turned off.	• Press the stop (■) button. • Turn power on.
The door does not close.	• The cassette is not properly loaded.	• Reinsert the cassette.
PLAYBACK		
Immediately stops.	• The tape is completely wound.	• Turn the tape over (Play back in opposite side). • Rewind the tape.
The level meter does not work.	• The tape is not recorded. • **The tape head is dirty.**	• Replace the tape with a recorded one. • **Clean the head (see page 4).**
No sound	• The amplifier input selector is not correctly set. • The amplifier volume level setting is too low. • Connection problems (wrong connection, cord removed, poor contact, broken wire).	• Set the amplifier input selector correctly. • Turn the amplifier volume control up. • Connect securely (see page 6).
RECORDING		
The recording indicator does not light up.	• The cassette erasure prevention tabs are broken.	• Replace the cassette with one whose tabs are intact. • Cover the hole under the tab (see page 5).
The level meter does not work.	• REC LEVEL control is set too low. • The amplifier is not delivering a recording signal (from the tuner, CD player, etc.). • Wrong connection, connection cord removed, poor contact, broken wire.	• Turn REC LEVEL control up (see page 15). • Set the amplifier recording output selector correctly. • Check connections (see page 6).
Immediately stops.	• The tape is completely wound up.	• Turn the tape over (recording in opposite side). • Rewind the tape.
Cannot record	• **The head is dirty.**	• **Clean the head (see page 4).**

Symptom	Cause	Remedy
POOR SOUND QUALITY		
Unstable or interrupted sound	• **The head, pinch rollers and capstans are dirty.** • The tape is not uniformly wound.	• **Clean (see page 4).** • Completely fast-forward or rewind the tape.
No high frequencies	• A tape recorded without Dolby NR is being played back with DOLBY NR switch in the B or C (or S) position. • **The head is dirty.**	• Set DOLBY NR switch to OFF. • **Clean the head (see page 4).**
High frequencies are emphasized.	• A Dolby NR-encoded tape is being played back with DOLBY NR switch in the OFF position.	• Set DOLBY NR switch to the same position used for recording.
Sound from previous recordings remains when re-recording a tape.	• **The head is dirty.**	• **Clean the head (see page 4).**
The sound is distorted.	• Recording level is too high. • The recorded signal itself is distorted. • **The head is dirty.**	• Turn REC LEVEL control down when recording (see page 15). • Replace the cassette. • **Clean the head (see page 4).**
Too much noise	• Hi noise tape is being used. • Incomplete insertion of a connection cord, poor contact. • Recording level is too low. • **The head is dirty.** • The head is magnetized.	• Replace the cassette. • Check connections (see page 6). • Turn REC LEVEL control up when recording (see page 15). • **Clean the head (see page 4).** • Demagnetize with a head demagnetizer (see page 4).
AUTO BLE		
Flashing "ERR" (or "Error").	• The heads are dirty. • The tape is old. • The tape selector mechanism does not function properly.	• Press one of the operation buttons to reset, and clean the heads (see page 4). • Press one of the operation buttons to reset, and replace the cassette tape. • Press one of the operation buttons to reset, and check the sensor holes of the cassette tape.
The AUTO BLE tuning does not start.	• The erasure prevention tabs are broken off.	• Replace the cassette with one whose tabs are intact, or cover the hole with a piece of tape (see page 5).
OTHERS		
The music search function does not work.	• Blanks between selections are less than 4 seconds long.	• Use a tape with blanks more than 4 seconds long.
Recording or playback starts suddenly when turning power on.	• TIMER switch is set to the PLAY or REC position.	• Set TIMER switch to OFF.
System remote control does not operate. (Not provided in CT-979 and CT-777)	• Control cord is not connected.	• Connect control cord properly (see page 6).
CD•DECK SYNCHRO recording cannot be carried out.	• CD•DECK SYNCHRO control cord and Input/Output cords are not connected. • The cassette tape accidental erasure prevention tabs are broken.	• Connect correctly (see page 6). • Replace the cassette with one whose tabs are intact (see page 5).
The CD SYNC (CD•DECK SYNCHRO) indicator is off during CD•DECK SYNCHRO recording.	• The tape ran out during the CD•DECK SYNCHRO mode. • After the deck entered recording standby mode, more than 1 minute elapsed before the CD player resumed playback.	• Replace the tape with a longer one. • Change the disc and press the CD SYNC button again
Remaining time cannot be displayed (CT-93, CT-979)	• Incorrect setting of the tape capacity.	• Set the tape capacity correctly (see page 13).

SPECIFICATIONS

System ..... 4 track, 2-channel stereo
Heads
Recording and playback head:
[CT-93, CT-979]
Laser amorphous playback head and Laser amorphous recording head combination × 1
[CT-41, CT-777, CT-S709, CT-676]
Combined Hard permalloy recording/Hard permalloy playback head × 1
Erasing head: Ferrite head × 1
Motor ..... DC servo capstan motor × 1
DC reel motor × 1
DC assist motor × 1
Wow and Flutter
[CT-93, CT-979] ..... No more than 0.022% (WRMS)
No more than ±0.052% (DIN)
[CT-41, CT-777] ..... Nor more than 0.023% (WRMS)
No more than ±0.056% (DIN)
[CT-S709, CT-676] ..... No more than 0.027% (WRMS)
No more than ±0.065% (DIN)
Fast Winding Time (C-60 tape)
[CT-93, CT-979, CT-41, CT-777]
..... Approximately 75 seconds
[CT-S709, CT-676] ..... Approximately 90 seconds
Frequency Response (−20 dB recording, ±6 dB)
[CT-93, CT-979, CT-41, CT-777]
Metal tape ..... 15 to 22,000 Hz
Chrome tape ..... 15 to 21,000 Hz
Normal tape ..... 15 to 21,000 Hz
[CT-S709, CT-676]
Metal tape ..... 15 to 21,000 Hz
Chrome tape ..... 15 to 20,000 Hz
Normal tape ..... 15 to 20,000 Hz
Signal-to-Noise Ratio (Dolby NR off)
[CT-93, CT-979] ..... More than 61 dB
[CT-41, CT-777, CT-S709, CT-676] ..... More than 60 dB
Noise Reduction Effect
Dolby B-type NR ON ..... More than 10 dB (at 5 kHz)
Dolby C-type NR ON ..... More than 19 dB (at 5 kHz)
Dolby S-type NR ON (CT-93, CT-41) ..... More than 22 dB (at 5 kHz)
Harmonic Distortion ..... No more than 0.6% (0 dB)
Input (Sensitivity)
LINE (INPUT)
[CT-93, CT-979, CT-41, CT-777] ..... 60 mV
(Input impedance 47 kΩ)
[CT-S709, CT-676] ..... 63 mV
(Input impedance 54 kΩ)
Output (Reference level)
LINE (OUTPUT)
[CT-93, CT-979, CT-41, CT-777] ..... 316 mV
(Output impedance 1.8 kΩ)
[CT-S709, CT-676] ..... 316 mV
(Output impedance 3.2 kΩ)
Headphone
(Load impedance 8 Ω, PHONES LEVEL control max.)
[CT-93, CT-979, CT-41, CT-777] ..... 2.3 mW
[CT-S709, CT-676] ..... 1.3 mW

Subfunctions

- Super AUTO BLE system
- Bias control with motor driven (CT-93, CT-979)
- Dolby HX Pro Headroom Extension system
(CT-93, CT-979: on/off possible)
- Dolby S-type noise reduction system (CT-93, CT-41)
- Dolby B-type and C-type noise reduction systems
- MPX filter
- Level meter with 2 modes peak hold selection
(CT-93, CT-979, CT-41, CT-777: 16 +1 segments)
(CT-S709, CT-676: 10 +1 segments)
- Level meter range selection (wide/expanded)
- Peak level calibration system (CT-93, CT-979)
- 4-digit electronic tape counter with mode selection
(CT-93, CT-979: Normal/Time/Remain time)
(CT-41, CT-777, CT-S709, CT-676: Normal/Time)
- Auto monitor selection (Tape/Source)
- Display off
- Music search (over ±15 selections)
- Automatic Tape Loose Canceller (ATLC)
- Tape return/Return play
- Auto space recording mute
- Auto tape selector
- Playback/recording timer start function
- CD•DECK SYNCHRO recording
- Headphones jack with level control
- Power eject (Open/Close)
- Repeat playback
- System remote control available
(not provided in CT-979 and CT-777)

Miscellaneous

Power Requirements
U.S., Canadian model ..... AC 120 V, 60 Hz
U.K. model ..... AC 230−240 Volts−, 50/60 Hz
Multi-voltage model ..... AC 110/120−127/220/240 V (switchable), 50/60 Hz

Power Consumption

	U.S. Canadian	U.K.	Multi-voltage
CT-93	27 W	—	29 W
CT-979	—	20 W	—
CT-41	26 W	—	—
CT-777	—	19 W	—
CT-S709	21 W	—	—
CT-676	—	21 W	21 W

Dimensions
[CT-93] ..... 457(W) × 136(H) × 370(D) mm
17(W) × 5-3/8(H) × 14-9/16(D) in
[CT-979, CT-41, CT-777]
..... 420(W) × 135(H) × 370(D) mm
16-9/16(W) × 5-5/16(H) × 14-9/16(D) in
[CT-S709, CT-676] ..... 420(W) × 130.5(H) × 323(D) mm
16-9/16(W) × 5-1/8(H) × 12-11/16(D) in
Weight (without package)
[CT-93] ..... 10.8 kg (23 lb 13 oz)
[CT-979] ..... 8.2 kg (18 lb 1 oz)
[CT-41] ..... 8.2 kg (18 lb 1 oz)
[CT-777] ..... 7.6 kg (16 lb 12 oz)
[CT-S709, CT-676] ..... 5.8 kg (12 lb 13 oz)

Accessories

Operating instructions 1
Connection cord with pin plugs 2
CD•DECK SYNCHRO control cord 1
Remote control cord (Not provided in CT-979 and CT-777) ... 1

NOTE:
Specifications and design subject to possible modifications without notice, due to improvements.

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